



Spectral Gamma-Ray Borehole  
Log Data Report

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Borehole

41-14-06

Log Event A

### Borehole Information

Farm : <u>SX</u>	Tank : <u>SX-114</u>	Site Number : <u>299-W23-87</u>
N-Coord : <u>35,096</u>	W-Coord : <u>75,773</u>	TOC Elevation : <u>662.60</u>
Water Level, ft :	Date Drilled : <u>3/2/1962</u>	

### Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>75</u>	

### Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>03/1995</u>	Calibration Reference : <u>GJPO-HAN-1</u>	

### Logging Information

Log Run Number : <u>1</u>	Log Run Date : <u>7/17/1995</u>	Logging Engineer: <u>Gary Lekvold</u>
Start Depth, ft.: <u>76.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>0.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

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**Analysis Information**

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Analyst : P.D. HenwoodData Processing Reference : Data Analysis Manual Ver. 1Analysis Date : 12/5/1995**Analysis Notes :**

This borehole was logged in one log run. The pre- and post-survey field verification spectra showed consistent activities, indicating the logging system operated properly during data collection. Energy calibrations differed because of gain drift in the instrumentation. Gain drifts during data collection necessitated multiple energy versus channel number recalibrations during processing of the data to maintain proper peak identification. No depth overlaps occurred in this borehole, because only one log run was necessary.

A casing-correction factor was applied for a casing thickness of 1/4 (0.25) inches.

Cs-137 and Co-60 were the only man-made radionuclides identified in this borehole. Cs-137 was measured almost continuously at concentrations less than 1 pCi/g, and Co-60 was measured at about 35 ft and below about 60 ft at concentrations less than 1 pCi/g. Co-60 concentrations were determined from the 1173-keV energy peak. Concentrations determined from the 1333-keV peak were similar and within the statistical uncertainty of the measurements using the 1173-keV data.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank SX-114.

**Log Plot Notes:**

Four log plots are provided. The Cs-137 concentrations are provided in a separate log plot to document the relative concentrations and shape of the distribution. A separate plot of Co-60 is also provided with the concentrations determined from the 1173-keV energy peak.

A plot of naturally occurring radionuclides (K-40, U-238, and Th-232) is also included, which can be used for lithology interpretation. A combination plot includes logs of Cs-137, natural gamma, total gamma derived from the spectral data, and the latest available data from the WHC Tank Farms gross gamma logging. With the exception of scale changes, no attempt has been made to adjust for depth discrepancies or other potential problems in the WHC gross gamma data. Co-60 concentrations are plotted with the Cs-137 concentrations on the combination plot without error bars or MDA values. The individual plots of Co-60 and Cs-137 should be reviewed for the MDA values and error bars. The energy peaks from which the radionuclide concentrations were derived are included in the headings for the Cs-137, Co-60 and natural gamma plots.

The statistical uncertainty in a measurement is represented by uncertainty bars on the log plots where appropriate. This uncertainty is reported at the 95-percent confidence interval. The minimum detectable activity (MDA) is represented as an open circle on the plots. The MDA of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible. If the reported concentration is slightly above the MDA, the 95-percent confidence interval may extend below the MDA value.